

## Abstract

[0062] An apparatus for characterizing capacitance and thickness of an insulating layer constructed between a conductive gate and a substrate has at least one test structure formed at a surface of a substrate. Each test structure has a bulk region formed of a semiconductor within the surface. Further the test structure has at least one source region and one drain region within the bulk region. A thin insulating layer is placed above the each source region, each drain region, and the bulk region. A conductive gate is placed above the thin insulating layer. A capacitance-voltage measuring device measures a capacitance value of the test structure, while forcing the bulk region between the source region and the drain region to be floating. An insulating layer thickness calculator determines the thickness of the insulating layer from the capacitance.